



Senate Bill 1609

Defined Contribution

& Retirement Study Committee

Final Report

December 21, 2012

TABLE OF CONTENTS

LETTER FROM THE CHAIRMAN.....	3
FINAL REPORT & RECOMMENADATIONS	
Task 1.....	4
Task 2.....	17
Task 3.....	17
Task 4.....	19
Task 5.....	20
SUPPLEMENTAL INFORMATION	
Notes.....	21
Appendix.....	22

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OFFICE OF THE
ARIZONA STATE TREASURER

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TREASURER



December 21, 2012

Hon. Jan Brewer
Governor, State of Arizona

Hon. Steve Pierce, President
Arizona State Senate

Hon. Andy Biggs, President-elect
Arizona State Senate

Hon. Andy Tobin, Speaker
Arizona House of Representatives

Dear Governor, Mr. President and Mr. Speaker,

Laws 2011, Chapter 357, Sec. 56 created the Defined Contribution and Retirement Study Committee consisting of the five members of the State Board of Investment, six members of the Arizona Legislature appointed by the President of the Senate and the Speaker of the House, and a member from each of the boards of the Arizona State Retirement System (ASRS) and the Public Safety Retirement System (PSPRS). Although the Treasurer's Office does not oversee our state pensions, we were happy to take on this assignment and we strove to provide an objective, independent, professional assessment and to serve both Arizona taxpayers and pension participants fairly.

The health and sustainability of our pension systems is of critical importance to everyone in Arizona. These benefits are funded from tax dollars and from the employees themselves. Much of the discussion surrounding any pension system revolves around complicated financial formulas. There is an equally important human element that must always be in the forefront; these pensions are for those who police our streets, put out the fires, respond to medical emergencies, teach our children and keep the basic functions of government running.

Arizona's retirement systems are professionally and competently managed. We are fortunate that our pensions are in far better shape than many other states. That said, there are issues that require attention. Several reform options are provided for policy makers to consider so Arizona can continue to strengthen and enhance those plans in order to protect the benefits to current retirees and employees that have earned them, as well taxpayers now and in the future.

This committee was given five areas of our pension system to examine and make recommendations upon, a requirement to meet at least twice in calendar year 2011, produce an interim report by December 31, 2011, and to deliver a final report by December 31, 2012. I am pleased to report that all those requirements have been met, and that the full \$100,000 allocated to the committee to conduct its research will be returned to the retirement plans as existing resources were utilized from the Treasurer's Office, Legislature and retirement plans themselves. My goal as chairman of this committee was to do a professional and thorough analysis of our four pension systems. It is my hope that this comprehensive final report reflects that commitment.

Sincerely,

Doug Ducey
Treasurer
State of Arizona
Chairman of the Defined Contribution and Retirement Study Committee

Task 1:

The committee shall study the feasibility and cost of transferring existing members of a public retirement system or plan to a new defined contribution plan as well as providing for a defined contribution plan for newly hired public employees. The committee shall examine public and private defined contribution plans in other states, including their plan designs, and the federal tax issues that affect a defined contribution retirement plan.

The State of Arizona sponsors four retirement systems that currently cover more than 581,000 employees, retirees, or former employees who have yet to retire. These are the individuals who police our streets, respond to medical emergencies, teach our children, and keep the basic functions of government running. All four plans are Defined Benefit (DB) plans. That means once vested, an employee is guaranteed a monthly salary benefit based on years of service and salary. The plans are funded by a combination of contributions from employees, employers (taxpayers) and investment gains. The ratio of a plan's assets to its liabilities is known as its funded status. Essentially this is a measure of how much cash the plan has on hand today to pay for the retirement benefits employees have earned. A 100% funded status means a pension plan has a net present value equal to all of its obligations.

Figure 1: Plan Demographics

Members	EORP	PSPRS	CORP	ASRS	TOTAL
Retired	992	9,802	3,476	114,431	128,701
Active	845	18,542	14,991	203,994	238,372
Inactive	132	1,264	1,101	210,060	212,557
Drop		1,496			1,496
TOTAL	1,969	31,104	19,568	528,485	581,126

The four pension plans have unfunded liabilities on June 30, 2012 ranging from \$18.4 billion to \$39.6 billion depending on what discount rate is used, and using the market valuation of the plans' assets.¹ To put it into context, total net ongoing revenue collected by Arizona's General Fund was only \$8.5 billion in FY 2012.² This growth of the retirement plans' unfunded liabilities led to the passage of Senate Bill 1609 in 2011, which included the creation of the Defined Contribution (DC) and Retirement Study Committee that resulted in this report.

In addition to a growing unfunded liability, the number of retired members in each of the four retirement systems is growing faster than the number of new workers entering each of the four systems (see figures 2 and 3). In the case of the Elected Officials Retirement Plan (EORP) there are more retired members, 992, than active members paying into the system, 845. For the other three plans, the Public Safety Personnel Retirement System (PSPRS), the Corrections Officer Retirement System (CORP) and Arizona State Retirement System (ASRS), the rate of retirees is increasing faster than new employees in recent years.

Figure 2: ASRS Active & Retired Members

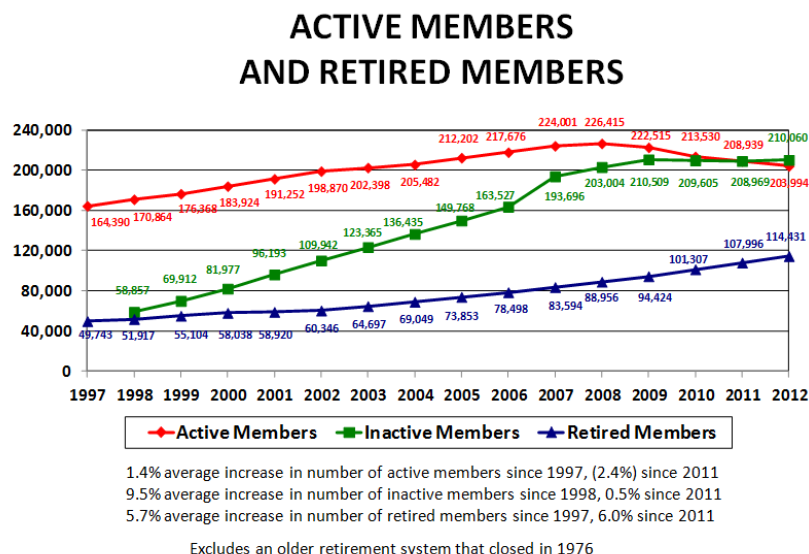
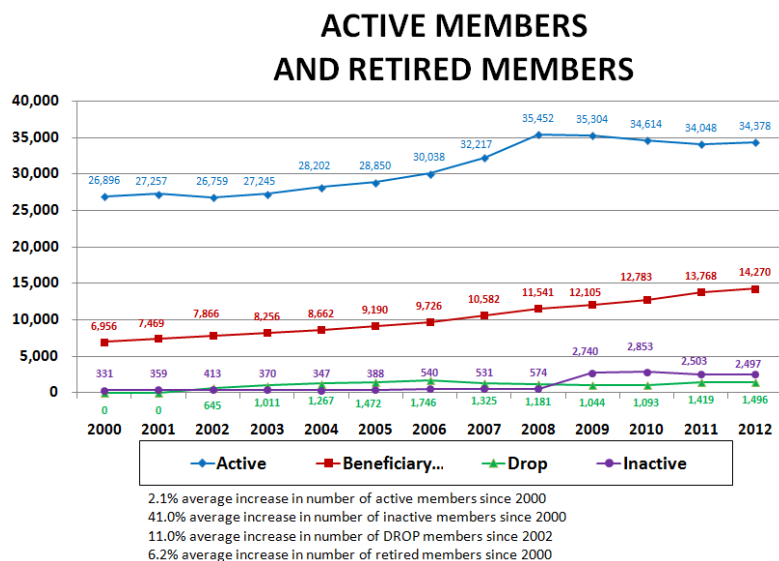


Figure 3: PSPRS, EORP and CORP Active & Retired Members



Ten years ago the Arizona plans had a surplus of \$3 billion and total taxpayer contributions were \$131 million compared to \$13 billion deficit and \$782 million in taxpayer contribution in 2011.³ This swing in the fiscal health of the retirement plans occurred even though the state has always fully funded the actuarial required contribution (ARC) each year, and the enactment of numerous benefit cuts and policy changes by the plans and the Legislature (see figures 4 and 5). Arizona's plans have made numerous changes in the past decade in attempt to save costs and should be commended for their foresight.⁴ However, while more is paid into the plan and benefits are reduced, the unfunded liabilities of the plans continue to increase. Independent third party analyses of the plans warn that more reforms are necessary to ensure the viability of the plans into the future.⁵

Figure 4: ASRS Cash Flow

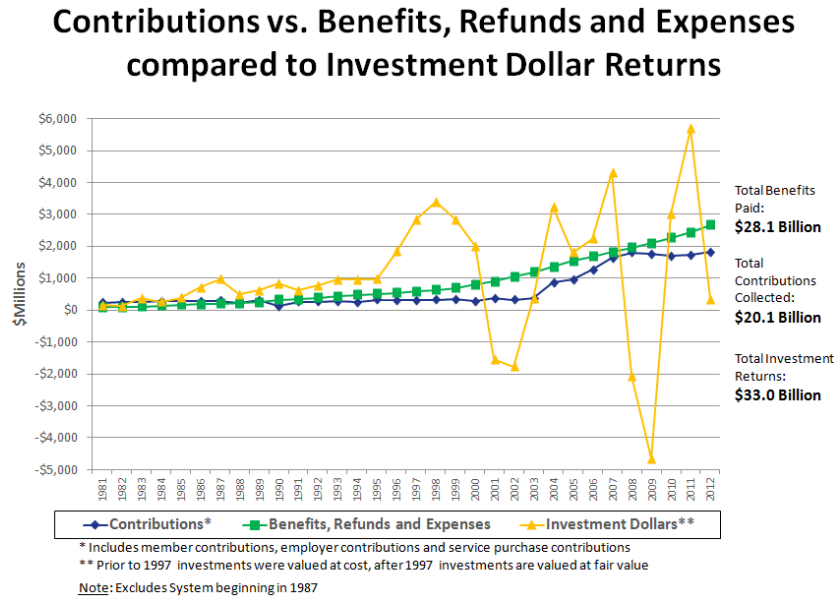
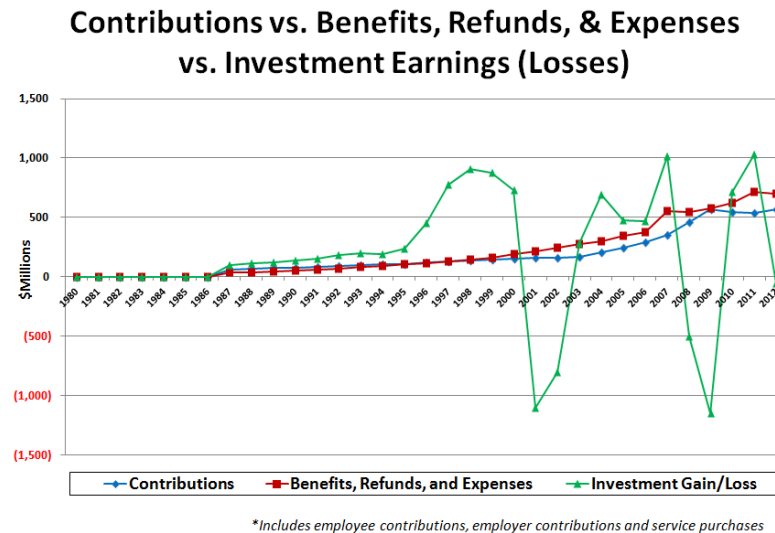


Figure 5: Total Plan PSPRS, EORP and CORP Cash Flow



History of Unfunded Liability

A combination of many factors has led to the unfunded liability including benefit increases, contribution rates below normal cost, and investment losses. In 1999 benefits were increased by the Arizona Legislature without detailed financial simulations indicating the full financial impact of benefit increases during both up and down financial markets.⁶ The two financial market downturns in 2000 and 2008 have resulted in a significant drop in the value of the investments in the plans.

The Legislature is to be commended for passing Senate Bill 1609, which made numerous changes to strengthen the retirement plans. In the case of PSPRS, CORP and EORP, member contribution rates will increase over a five year period similar to what ASRS employees are paying, with the balance of the contribution rate being paid for by taxpayers. In the case of ASRS, employees and employers continue to split the contribution rate equally. The plans themselves have also made changes in policy to the betterment of the funded status. In the case of PSPRS, the discount rate used to calculate liabilities is being dropped from its previous 8.25 percent rate in 2011 to a 7.5 percent rate by 2014. PSPRS has also adopted an amortization schedule designed to pay off the current liability in 24 years and switched to the Entry Age Normal method of accounting, which doesn't backload liability costs.

However, litigation opposing some of those changes made to PSPRS and EORP has been filed. If the litigation is successful, the prospects for those two plans are grim, according to the plan administrator.⁷ That is because the current mechanism for determining cost of living allowances (COLAs) forces the plan to take a portion of investment gains each year to pay for COLAs instead of using the gains to offset investment losses from prior years. This statutory scheme is fiscally questionable. (It should be noted, however, that some members of PSPRS do not participate in Social Security Insurance, which does provide a COLA.) The effect of the SB 1609 can be illustrated by contribution rates for the Arizona Department of Public Safety. Under the changes currently being litigated, the contribution rates would increase to 58.7 percent of payroll by 2017 from 49.7 percent of payroll today and then gradually decrease to 17.3 percent of payroll in 30 years. By comparison, without the SB 1609 changes, contribution rates will increase to 66 percent of payroll in 2027 from the 49.7 percent of payroll today before decreasing to 33.3 percent of payroll in 30 years.

The best analogy to the situation Arizona finds itself in with respect to the retirement systems was made by Josh McGee, vice president of the Laura and John Arnold Foundation, during his presentation to the committee on November 27, 2012. When an oil well suffers a blowout there are two problems that have to be addressed: stopping the leak and cleaning up the oil spill itself.⁸ In the case of DB retirement systems, the oil spill is the unfunded liability and the traditional DB system is the leaky oil well. If both are not addressed, then unfunded liabilities can continue to increase even as the state cuts benefits and increases contribution rates to address the unfunded liability. SB 1609 was the Legislature's first large attempt in treating both the "leak" and the "spill."

Paying off the unfunded liability does not address the inherent unpredictability of traditional DB cost that can add to the unfunded liability going forward. For ASRS, all of the investment risk is shared between employees and taxpayers, and for the Public Safety Retirement System (PSPRS), the Correctional Officers Retirement Plan (CORP) and the Elected Officials Retirement Plan (EORP); the investment risk is moving towards a one-third/two-thirds split between employees and taxpayers (see figures 6 and 7).

Figure 6: ASRS History of Contribution Rates

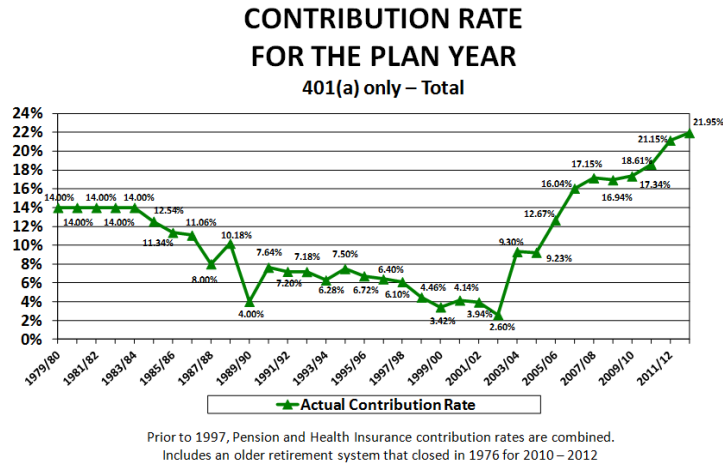
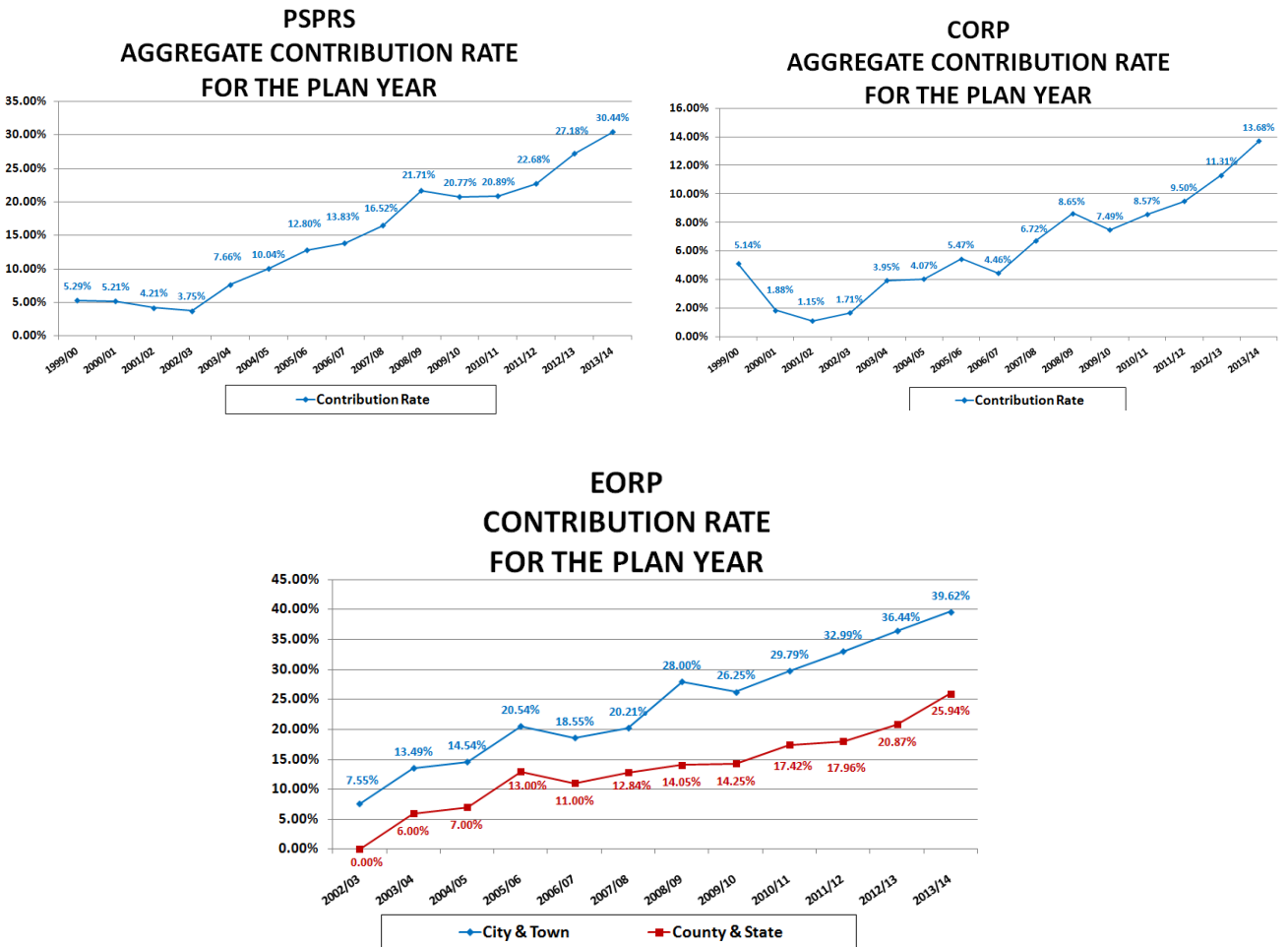


Figure 7: History of PSPRS, CORP and EORP Contribution Rates



Retirement System Costs

This committee was tasked to examine the feasibility and costs associated with moving existing and/or future government employees from a DB retirement system to a DC system. After examining the literature, hearing testimony and reviewing recent court cases, the committee does not believe existing employees can be forced from a DB system to a DC system. Such a move would invite litigation from not only employees, but outside groups such as the Goldwater Institute as a violation of contract law under the Arizona Constitution.⁹ However, current employees could voluntarily switch to a new plan if given the choice.

As for the costs associated with starting a DC system for new employees, it is the committee's determination that the state would not incur any meaningful additional cost if policymakers decided to offer new employees a new DC plan. Nor does the creation of a new DC plan reduce the current unfunded liabilities of the existing DB plans. Over time a DC plan does provide more cost certainty for employers, but the current DB plans' unfunded liabilities still must be paid. Although there are some restrictions, how that debt is paid is fundamentally up to policy makers.¹⁰ Accounting standards establish guidelines for reporting liabilities, but do not dictate pension funding. If policymakers create a new DC plan for new employees, whether optional or mandatory, the Legislature can choose to pay down the unfunded liability through a variety of methods and funding sources. The most logical is to continue to amortize the cost over total payroll of the employer.¹¹

For example, the current contribution rate for ASRS is 22.28 percent. This breaks down to 12.92 percent for the normal cost, 8.23 percent for the amortized payment of the unfunded liability of the DB benefit, .65 percent for the health benefit (which is broken down as .42 percent normal cost and .23 percent for the unfunded liability of the health benefit,) and .48 percent for the disability benefit. The employee pays 11.14 percent of salary and the taxpayers pay 11.14 percent of payroll to make these contributions into the ASRS system. If the Legislature adopts a new retirement plan or optional DC plan and amortizes the unfunded liability over total payroll, employers would still pay 8.46 percent for amortized cost of the unfunded liabilities of the DB and health benefit and can choose to pay the remaining 2.68 percent (11.14 percent – 8.46 percent) of pay to match an employee's contribution to the optional DC plan, or pay more into the DB plan. As the unfunded liability reduces, policymakers could increase the DC match, keep it level, or accelerate paying down the unfunded liability (the amortized cost of the unfunded liability does vary through time and could also increase in the future).

What the employee contributes in an optional DC plan could either be mandated or voluntary. The maximum amount allowed under federal law for both employee and employer contributions in a DC plan is \$17,500 a year per employee, with an additional \$5,500 a year for employees 50 years and older. Participation in optional DC plans varies among the states, depends on the attractiveness of the plan, and can be as high as 25 percent of new employees.¹² Offering a DC plan can be an incentive to find employees for certain jobs in government where job mobility is desirable.¹³

Outside experts that have reviewed Arizona's plans have concluded that a credible plan to pay down the existing liabilities has been adopted.¹⁴ In the case of PSPRS, EORP and CORP, the board of trustees have adopted an amortization schedule that would eliminate the deficit in 24 years. For ASRS,

the plan is proposing legislation for 2013 that would allow the board to do likewise and implement a plan to pay off the deficit in less than a rolling 30 years (see figures 8 and 9).

*Figure 8: Projected Aggregate Contribution Rates and Funded Status for ASRS
(Assumes future investment returns of 8.0% on Market Value of Assets and excludes future potential PBIs)*

PROJECTED CONTRIBUTION RATES						PROJECTED FUNDED STATUS					
ASRS Fiscal Year	No Growth in Employee Membership	2.5% Growth in Employee Membership	ASRS Fiscal Year	No Growth in Employee Membership	2.5% Growth in Employee Membership	Valuation Date	No Growth in Employee Membership	2.5% Annual Growth in Employee Membership	Valuation Date	No Growth in Employee Membership	2.5% Annual Growth in Employee Membership
2013	21.95%	21.95%	2028	19.66%	16.81%	2012	75%	75%	2027	79%	80%
2014	22.47%	22.28%	2029	19.27%	16.38%	2013	75%	75%	2028	80%	81%
2015	23.01%	22.58%	2030	18.89%	15.97%	2014	74%	74%	2029	80%	82%
2016	23.36%	22.67%	2031	18.48%	15.57%	2015	73%	73%	2030	81%	82%
2017	23.54%	22.57%	2032	18.09%	15.19%	2016	73%	73%	2031	81%	83%
2018	23.85%	22.57%	2033	17.73%	14.86%	2017	72%	72%	2032	82%	84%
2019	23.73%	22.17%	2034	17.38%	14.54%	2018	72%	72%	2033	82%	84%
2020	23.05%	21.30%	2035	17.04%	14.24%	2019	73%	74%	2034	83%	85%
2021	22.41%	20.48%	2036	16.70%	13.97%	2020	75%	75%	2035	83%	86%
2022	22.09%	19.95%	2037	16.39%	13.72%	2021	75%	76%	2036	84%	86%
2023	21.69%	19.38%	2038	16.10%	13.50%	2022	76%	77%	2037	84%	87%
2024	21.29%	18.83%	2039	15.83%	13.30%	2023	77%	77%	2038	84%	87%
2025	20.89%	18.30%	2040	15.59%	13.13%	2024	77%	78%	2039	85%	88%
2026	20.47%	17.78%	2041	15.36%	12.97%	2025	78%	79%	2040	85%	88%
2027	20.04%	17.27%	2042	15.14%	12.83%	2026	78%	80%	2041	86%	89%

*Figure 9: Projected Employer Contribution Rates and Funded Status for PSPRS, EORP and CORP
(Represents the 75% probability that contributions will be at most this percent of payroll)*

PROJECTED CONTRIBUTION RATES					PROJECTED FUNDED STATUS				
Valuation Date	PSPRS	EORP	Valuation Date	CORP	Valuation Date	PSPRS	EORP	Valuation Date	CORP
2012	29.10%	38.10%	2010	8.30%	2012	60.1%	59.6%	2010	83.8%
2017	35.80%	41.40%	2015	13.00%	2017	56.7%	53.2%	2015	63.5%
2022	38.50%	40.30%	2020	14.00%	2022	62.5%	58.2%	2020	66.0%
2027	38.80%	37.10%	2025	15.20%	2027	71.3%	69.4%	2025	71.0%
2032	30.40%	26.20%	2030	13.30%	2032	80.0%	81.8%	2030	76.7%
2037	25.50%	22.10%	2035	11.60%	2037	84.0%	87.4%	2035	80.9%
2042	22.70%	19.40%	2040	10.20%	2042	86.8%	90.0%	2040	84.7%
2047	20.60%	18.00%	2045	9.30%	2047	89.5%	91.4%	2045	87.8%
2052	20.00%	17.70%	2050	9.00%	2052	90.3%	92.4%	2050	89.5%

The pay off schedule does envision increasing contribution rates over the near term before leveling off and declining in the out years – assuming the plans earn their expected rates of return of 8 percent and 7.5 percent going forward. If the plans do not meet their return assumptions, the liabilities will grow, contributions from taxpayers and employees will increase, and further benefit reductions will likely be considered. While those investment returns match long-term historical trends, it is clear that in the past decade that has not been the case, with returns averaging 6.3 percent for ASRS and 5.51 percent for the PSPRS total fund. With the continued low interest rate environment being implemented by the United States Federal Reserve, it is likely that the plans are facing close to a 20-year period of below

average investment returns. Compounding years of low investment returns puts more funding pressure on the plans, and increases the unfunded liability, which leads to larger contribution rates by employees and employers.

By comparison, investment returns would have to range between 10.5 percent and 11.5 percent for the PSPRS, EORP and CORP system in order to pay off the unfunded liability without an increase in contribution rates.¹⁵ If investments matched the long-term average of 9.5 percent, it would take between 45 and 55 years to eliminate the liability. For ASRS, investment returns would have to average 8.27 percent to pay off the liability in 30 years as currently projected, but would only take 16 years to pay off if the long term average return of 10.0 percent was achieved.¹⁶

These contribution projections are based on the discount rates of between 7.5 percent and 8 percent that the plans currently use. If a lower discount rate is used, the liabilities and contribution rates would increase. The Government Accounting Standards Board recently adopted new rules that will require public pension to use a lower discount rate for the unfunded portion of their liabilities. These new rules will be phasing in over the next two years and will have to be reported in the annual financial reports of entities (see figure 10).

Figure 10: Liabilities at 5% and 8%

		2011	2011	2012	2012
	Discount Rate	8%	5%	8%	5%
ASRS	Liabilities	38,942	54,553	39,952	55,562
	Assets*	<u>28,033</u>	<u>28,033</u>	<u>27,569</u>	<u>27,569</u>
	Deficit	-10,909	-26,520	-12,383	-27,993
	% Funded	71.99%	51.39%	69.01%	49.62%
PSPRS	Liabilities	9,365	13,608	10,326	14,552
	Assets	<u>5,048</u>	<u>5,048</u>	<u>5,075</u>	<u>5,075</u>
	Deficit	-4,317	-8,560	-5,251	-9,477
	% Funded	53.90%	37.10%	49.15%	34.87%
CORP	Liabilities	2,009	3,030	2,232	3,338
	Assets	<u>1,304</u>	<u>1,304</u>	<u>1,287</u>	<u>1,288</u>
	Deficit	-705	-1726	-945	-2050
	% Funded	64.91%	43.04%	57.66%	38.59%
EORP	Liabilities	590	801	610	833
	Assets	<u>315</u>	<u>315</u>	<u>297</u>	<u>298</u>
	Deficit	-275	-486	-313	-535
	% Funded	53.39%	39.33%	48.69%	35.77%
TOTAL	Liabilities	50,906	71,992	53,120	74,285
	Assets	<u>34,700</u>	<u>34,700</u>	<u>34,700</u>	<u>34,701</u>
	Deficit	-16,206	-37,292	-18,420	-39,584
	% Funded	68.16%	48.20%	65.32%	46.71%

*All assets reported at Ending Market Value

The choice facing Arizona policy makers is whether the state should continue to make traditional defined benefit promises. These promises expose future generations of taxpayers to the risk that they may have to pick up the tab for services that were enjoyed in the past. And these promises expose employees to the risk that benefits may become underfunded to the point that they will be asked to bear large cuts to benefits and/or salary. In some jurisdictions, such as Central Falls, Rhode Island, decisions were delayed until the town declared bankruptcy and *EXISTING* retired employees were forced to take a 55 percent reduction in their monthly retirement check.¹⁷ At the point of bankruptcy, the funding ratio of the Central Fall retirement plans was 14.3 percent with a contribution rate of 28.2 percent.¹⁸ By comparison, 39 of the 270 entities in PSPRS have funding ratios less than 50 percent, and seven of the entities are below 25 percent.¹⁹ Senate Bill 1609 was enacted in 2011 to address these risks, improve the funding status of the plans, and protect the core benefit for retirees and current employees. The longer it takes to make changes necessary to a retirement plan to achieve proper funded status, the harder it becomes to achieve that status, and the risk increases that existing obligations will be abrogated through bankruptcy.²⁰

If Arizona policymakers decide that in addition to cleaning up the “oil spill” they want to also address the “leaky oil well” then several options exist for consideration. The three main policy options available range from adopting a DC only plan, a cash-balance plan, or a hybrid plan that provides a DB based on average salary of all workers with a DC component for compensation above the average salary of all workers.

All three options have been implemented in various states in the past few years. There are pros and cons to all of the options for policymakers to consider. The following section provides a brief overview of four basic types of retirement plans available for public employees starting with the traditional defined benefit plan. To illustrate the difference of each plan, this report focuses on what the monthly cost is to provide a 25 year old employee today, who works for 30 years, to provide a yearly income of \$34,500 in retirement for at least 30 years, from age 55 to 85.²¹

Defined Benefit Plan

All four current Arizona retirement plans are DB plans. In the case of ASRS, an employee who works 30 years with a highest annual salary of \$50,000 for five years would receive a retirement of \$34,500 a year for life, regardless of how long the employee lived. The normal cost for the ASRS benefit (pension and health) is estimated to be 13.34 percent of pay. However, a total of 22.28 percent of salary is currently being set aside to provide for this benefit. The 8.94 percent difference between the pension normal cost and the actual contribution rate is used to pay down the unfunded liability (8.46 percent) and to pay for disability benefits (.48 percent.) Currently, that employee is paying approximately \$458 a month for the benefit and taxpayers another \$458 a month for a total of \$916 a month. For a traditional DB plan, the investment risk is 100 percent assumed by the employer. In the case of the public sector, that would be future taxpayers. It should be noted, that the \$34,500 is not hedged for inflation, and the purchasing power of the benefit will diminish over time.

Defined Contribution Plan

A DC plan has an employee and employer set aside a specific amount of money and when the employee is eligible to retire, the accumulated savings sits in an account for the employee to draw upon monthly in retirement. Assuming the same 8 percent return as the ASRS DB plan, an employee would set aside \$281 a month for 30 years and have a balance of \$419,465 to draw upon in retirement. To mitigate against annual inflation of 2.5 percent a year, then \$754 a month would be set aside and a balance of \$1,124,797 would have accumulated. There is no guarantee that the DC plan will earn the 8 percent investment return, and the employee bears 100 percent of all investment risks and costs. Assuming the plan did earn the amounts needed, the employee can then withdraw the \$34,500 a year, invest the rest at 8 percent, but if the retiree lives beyond age 85, there would be no assets left. However, the state could offer an annuity option for the employee to provide a guaranteed income for life with the accumulated balance.

Cash Balance Plans

A cash balance plan provides elements of both a DB and DC plan. Both employer and employee contribute to an account and the employer guarantees a minimum investment return on those balances. If the investment returns are higher than the minimum, the employee can share a percentage of the gains; the employer uses the remaining percentage to offset its costs for those years when the investment returns did not meet the minimum guaranteed return. At the time of retirement, the amount that is accumulated can then be annuitized into a monthly benefit for the retiree, or taken as a lump sum for the retiree to withdraw as needed. In the cash balance plan, the investment risk is on the employer for the guaranteed amount, generally lower than what most DB plans assume today. Returns above that amount can be shared between the employer and employee. In our example of providing retirement income of \$34,500 a year for 30 years, a 5 percent guaranteed return would require a monthly contribution of \$669 and result in a balance of \$556,867 at retirement. The yearly cost of the plan would obviously fluctuate depending on investment returns, and the ending balance could be higher if returns are greater than 5 percent for the 30 years the employee contributed to the plan. Similar to a DC plan, the state could offer an annuity option for the employee to provide a guaranteed income for life with the accumulated balance.

Hybrid Plans

A hybrid plan provides a reduced DB plan combined with a DC plan. If the DB plan was half of what it normally would be, in this case a \$17,250 a year benefit, then a DC plan would supplement the rest of the retirement benefit. Another option would be to provide a DB based on the average salary of the plan, with all income above that point being converted to a DC plan. In this case, the investment risk is born by taxpayers for the minimum benefit and the employee assumes the investment risk for everything above the average salary, or the minimum benefit. Assuming an 8 percent return, \$140 a month would need to be set aside to accumulate \$209,732 for the 30 year period to provide annual income of \$17,250 a year. To hedge against inflation of 2.5 percent, then \$377 a month would be set aside to accumulate \$562,398 in assets at retirement, to withdraw \$17,250 a year and investing the rest at 8 percent. As with the cash balance and DC plan, employees could be offered an annuity option to

provide a guaranteed income for life with the accumulated balance in the DC portion to go along with the lower DB benefit.

Private Sector DC Plans

For the past four decades, the private sector has been moving away from DB plans and putting new employees in DC plans. Most private sector DC plans have lower contribution levels and consequentially lower post retirement income levels. A survey of large Arizona businesses finds that 7.2 percent of employees have a DB plan, 66.7 percent have a DC plan, and 26.1 percent offer both.²² Nationally, studies indicate that about 30 percent offer a DB plan to new hires (half of which are cash-balance plans) and 70 percent offer only a DC plan to new hires.²³ Thus, a policy concern in regards to maintaining the DB plans for the public sector would be: What is the tolerance level of the voting public to pay higher taxes to support public sector DB retirement plans when the majority of the private sector is no longer offered a DB retirement plan outside of social security?

There are several drawbacks to DC plans under the private sector 401(k) system. In many cases they are costlier to administer and earn less than their DB plans.²⁴ To mitigate this issue, several states, such as Oregon, Washington and Utah have required the DC plan to be managed by the same investment professionals as the DB plan, to reduce costs and provide higher returns. If Arizona policymakers were to adopt any new retirement plan model that included a DC component, it is recommended that the current professional investment management structure remain in place, rather than allow a variety of DC plan providers to manage the investments. Several DC plans offered to higher education employees, including in Arizona, offer models that could be followed. Further, a traditional DC plan allows employees to borrow against the balance for limited circumstances. This too can be limited as Utah did with their new plan.

Part of the committee's task was to review what other states have adopted in terms of non DB retirement plans. The following is a review of the most recent actions.

Recent State Actions on Cash Balance Option

Kansas closed its DB plan in 2012 for state and local government employees and replaced it with a new cash balance plan for those hired on or after January 1, 2015. The new plan guarantees a 5.25 percent interest rate, vesting after 5 years, and requires a 6 percent employee contribution and 3 to 6 percent employer contributions based on years of service.²⁵

Louisiana closed its DB plan for most state employees in 2012 and will replace it with a cash balance plan for new members starting July 1, 2013 with a 5-year vesting period. Employees will contribute 8 percent, employers 4 percent, and the annual interest credit is equal to the plan's actuarial return less 1 percent – with a floor of zero.

In addition to Kansas and Louisiana, Nebraska has had a cash balance plan since 2002 with employees providing between 4.5 and 4.8 percent of pay (depending on if they are state or local employees) and the employers paying between 150 to 156 percent of that contribution rate as a match. Employees are guaranteed a 5 percent return.

Recent State Actions on a Hybrid System

Virginia created a hybrid plan in 2012 with a DB and DC component for new state and local government employees, except for those in law enforcement or hazardous occupations. Employees will contribute 4 percent of pay to the DB plan which will have a service multiplier of 1 percent. The employer contribution will be actuarially determined and be the same as the contribution for the closed DB plan. Employees will pay 1 percent of pay to a DC plan with a 1 percent match from employers. Employees can also contribute up to 4 percent in additional salary to the DC plan that will be matched 100 percent for the first 1 percent, then 50 percent for each additional 1 percent contributed.

In November 2011, Rhode Island passed pension reforms that applied to not only future employees, but current employees as well. Under the new plan, effective July 1, 2012, employees pay 3.75 percent of pay into a new DB plan and 5 percent into a new DC plan. Taxpayers will pay an additional 1 percent into the DC accounts on top of the required ARC payment into the DB plan. The new DB plan has a 1 percent multiplier and full pension benefits can only be received when an employee reaches Social Security eligibility – 67 years.²⁶

In 2010, Utah created a hybrid plan that gives new employees the option of a reduced DB benefit plan combined with a DC plan or a new DC plan. In this new hybrid, employees who chose the option of the new DB plan are responsible for all contribution costs above the 10 percent employer contribution. If DB costs are less than 10 percent, the balance is placed in a DC component on the employee's behalf. In the DC only component, the employer will provide a contribution that is 10 percent of pay.

Other states that have hybrid options include Washington, Georgia, Oregon, Indiana and Michigan. States with core DC plans include: Alaska, Michigan, the District of Columbia and Minnesota (limited group of employees). States with optional DC plans include Montana, Florida, South Carolina, Ohio, Colorado and North Dakota. In addition, since 1974 the Arizona Board of Regents also administers an optional DC plan for employees of the state's three universities with more than 22,000 members (active, inactive and retired) and a participation rate of about 31.7 percent of eligible employees.

Tax Implications for DC Plans

The final portion of Task 1 was the federal tax implications for a DC plan. A review of Internal Revenue Source documents finds that for employees who are exempt from Social Security, the combined contribution rate from the employer and employee must be at least 7.5 percent in order to remain exempt from social security.²⁷ Contributions for all employees would remain tax-deferred similar to the current retirement plan contributions.

In summary, there are minimum costs for converting to a new retirement benefit plan, whether a new DC plan, a hybrid or cash balance plan. The costs that exist are the current unfunded liabilities of the plans which are obligations of the state and its political subdivisions. More than 18 states offer a retirement plan other than a DB plan and the private sector in Arizona mirrors national trends in terms of offering DC plans instead of DB plans.

Recommendations:

- Any proposed changes that create a new DC, reduced DB, cash balance, or hybrid retirement plan should only apply to future employees, or as a choice to existing employees. Current employees should not be forced to a new retirement plan as a matter of fairness and contract law.
- If the Legislature chooses to adopt any form of a new retirement plan (either a reduced DB plan, a DC plan, a hybrid plan or cash balance plan) the legacy unfunded liability should continue to be amortized over total employer payroll in such a manner as to not cause existing contribution rates to increase beyond what they would have under existing amortization schedules.
- The Legislature should consider enacting an optional DC plan for new or current employees who voluntarily desire such a plan. This will assist government at all levels in attracting and retaining those employees who would like to work in government for a limited time period as a public service option and not as a career. This would not apply to public safety employees (police, fire, and corrections officers) as the training required for those positions is unique to government and should require individuals who are committed to a career in public safety.
- If any new retirement plan system is enacted (a reduced DB plan, a DC plan, a hybrid plan or cash balance plan), the funds contributed to the plan should be managed in a similar fashion as today, by a professional investment staff so as to reduce costs and maximize earnings for participants. This along with other best practices adopted by other states, such as not allowing borrowing against retirement funds, should be developed and implemented for any new retirement options.
- For non public safety employees, the Legislature should consider establishing retirement ages for new employees to match that of social security.
- The Legislature should adopt legislation allowing the ASRS system to amortize the current unfunded liability over a closed interval of less than a rolling 30 years.
- Once the current ASRS contribution rates have leveled off, switching back to an Entry Age Normal (EAN) accounting methodology from the current Projected Unit Credit (PUC) methodology should occur.
- To prevent future legislation that increases benefits without properly accounting for their cost, legislation should be enacted that requires the retirement systems to calculate the net present value of any benefit increase under varying investment return scenarios so policymakers fully understand the dollar amount of the benefit being conferred.

- The retirement plans should report to the Legislature annually the unfunded liability of the funds using a discount rate that reflects the cost of borrowing for the state (new GASB rules) and one that reflects the expected investment return for the plan.
- Contribution rates should not be decreased below the normal cost of the retirement benefit for any of the plans unless the plan is fully funded as calculated by the lowest discount rate of liabilities (AA rated Muni Bond rate.)
- Legislation should never be enacted that allows employers to pay an amount less than what is annually required to move the plans to a fully funded status.
- Session law should be enacted to require employer groups to report to PSPRS how many current employees are exempt from social security so an accurate data set can be compiled.

Task 2:

The committee shall study all the existing supplemental retirement plans in the public safety personnel retirement system and the Arizona state retirement system, the advantages and disadvantages of these supplemental retirement plans and the feasibility of merging these supplemental retirement plans to achieve maximum effectiveness and minimization of costs to members and employers.

The committee was given presentations on the six supplemental plans offered by PSPRS, ASRS and the Department of Administration and examined the charges and costs of each of these plans. Based on the information presented, there doesn't appear to be any cost savings to either members or employers by consolidating these plans at the state level.

However, while not part of the committee charge, there is the issue of each political subdivision in the state – including the 230 plus school districts – having the ability to offer their own supplemental retirement system plan. The Legislature did address this in 2009 by allowing ASRS to offer a new supplemental plan on a voluntary basis for school districts and charter schools. To ensure greater savings for teachers and employees of cities and towns, the Legislature could enact legislation that would require local entities to participate in the statewide deferred compensation plans.

Recommendations:

- Employers participating in all four retirement plans should be encouraged to use the deferred compensation plans offered by the plans rather than contracting with their own providers.

Task 3:

The committee shall study the definitions of compensation, average yearly salary and salary as used by the Arizona state retirement system, the elected officials' retirement plan, the public safety personnel retirement system and the corrections officer retirement plan to ascertain the actuarial effect of these definitions on the respective retirement systems and plans, particularly the ability and actuality of "spiking" compensation.

The committee received presentations under two methodologies to examine if spiking exists in the retirement system. One method was the percentage of retirees that had their compensation increase by more than 25 percent during the last three years of employment. This is more than twice the average compensation increase that the plans use in determining wage inflation in the final years of employment. The second method was looking at pay increases over three year intervals over a nine-year period to see if compensation increases were higher in the last three years of employment, or the three and six years prior to employment.

In the information provided to the committee, between 22.6 and 29.77 percent of recent retirees from 2008 to 2011 received more than a 25 percent increase in compensation during the final 36 months of employment in PSPRS. For EORP, the increase ranged from 0 to 9 percent of recent retirees and for CORP the percentage ranged from 5.24 to 10.71 percent. The ASRS average ranged from 15.76 to 28.37 percent of recent retirees (see figures 11 and 12).

Figure 11: PSPRS, CORP and EORP Spiking Study Results

(Percentage of retirees receiving more than a 25% increase in compensation for final 36 months of employment)

Public Safety Study Results

Year of Retirement	Public Safety	Corrections Officers	Elected Officials
2011	22.6% increase	7.37% increase	7.04% increase
2010	27.27% increase	8.28% increase	8.57% increase
2009	29.77% increase	10.71% increase	0.00% increase
2008	25.16% increase	5.24% increase	9.09% increase

Figure 12: ASRS Spiking Study Results

ASRS Study Results

Fiscal Year	Average Salary in Final 3 Years	Average Salary in 3 Years Prior to Final 3 years	Average Increase from 3 Years Prior to Final 3 Years and Final 3 Years	Percentage of Retirees with an Aggregate Increase of 25% or more
2011	\$48,847	\$42,618	15.52%	15.76%
2010	\$47,908	\$40,186	20.76%	27.31%
2009	\$46,573	\$38,823	21.32%	28.37%
2008	\$44,636	\$37,763	19.76%	24.27%

If new retirement plans are enacted for new employees that moved to a hybrid, cash balance or DC system, then the issue of spiking would be eliminated as retirement benefits would be based on accumulated savings and not compensation.

Recommendations:

- Legislation should be considered going forward that limits retirement benefits to base salary compensation and does not include off-duty work and the use of lump sum payouts at termination of vacation and sick time. This would mitigate some of the methods in which a salary can be “spiked” to boost retirement benefits.

- Further legislative study of spiking and other methods of increasing compensation that affect final retirement benefits should be conducted.

Task 4:

The committee shall study in regards to the public safety personnel retirement system and the corrections officer retirement plan, the advantages and disadvantages of the local board system, the advantages and disadvantages of the agent multiple-employer public retirement system model and the feasibility of establishing a single employer public retirement system model.

The PSPRS administrator provided five different scenarios of consolidating the plan around:

1. Large employers
2. State of Arizona entities only
3. County employers
4. State and County employers separate
5. State and County employers combined

Each scenario presents winners and losers amongst all the plans in terms of rate increases or decreases. The smallest rate increase would occur if the state consolidated all of its PSPRS employers into a single entity. In this case, five state agencies would see their contribution rate decrease on average by 29.51 percent and four state agencies would see their rate increase on average by 3.34 percent.

Recommendations:

- The committee does not recommend the consolidation of the PSPRS system into a single system due to the large inequities between the funded statuses among the employer groups. However, legislation should be adopted that requires those PSPRS employers who are below 50 percent funded status to report to the Legislature what steps they are taking to bring the plans into funded status over the current amortization period.
- The committee recommends that State of Arizona itself consider consolidating its public safety employee groups into one entity to reduce the number of local boards and consolidate all disability claims as the inequities in state agency contribution rates are currently low.
- The committee recommends session law be passed that requires the employer groups in PSPRS and CORP provide information to the plan administrator on the costs of the local board system.

Task 5:

The committee shall study in regards to the public safety personnel retirement system and the corrections officer retirement plan, the procedures, determinations and granting of accidental and ordinary disability retirements to members, the effect of the local boards in providing adequate cost controls for these disability retirements, the establishment of another medical disability tier that provides for those members who cannot perform a reasonable range of duties within the member's job classification or department but who are not totally disabled and the elimination of the local boards in making such determinations and replacing the determinations of granting medical disabilities with a single determination board in the administrative offices of the public safety personnel retirement system.

Data provided by the administrator of PSPRS indicates that the dollar level of pension distributions for PSPRS has held steady between 10.2 to 12.8 percent of benefits paid since FY 1995 and currently is at 11.6 percent. Likewise, the total number of those receiving a disability pension has ranged between 11.9 and 15.1 percent of those receiving a pension since FY 1995, with the current level at 13.8 percent.

For CORP, the numbers indicate a decline in those receiving disability pensions from a high of 5.9 percent in FY 2000 to just 3.2 percent in FY 2011. As a result, total amount of benefits paid each for disabilities has decreased from 8.6 percent in FY 1995 to just 2.6 percent of benefits paid in FY 2011.

Disability determinations in the ASRS system is determined by a single entity with the board having the final say. In the PSPRS system, each employer establishes a board to make that determination. With smaller employers a disability claim may not arise for several years and the expertise in addressing the claim may not be as robust as with a board that is routinely examining such cases.

Recommendations:

- The PSPRS should examine the creation of regional boards through legislation for determining disability claims to provide a more consistent and uniform method of determining eligibility. A regional approach, perhaps by counties, is probably more logical than a single state-wide system.

Notes:

- ¹ Presentations by ASRS, PSPRS, CORP, EORP to the Defined Contribution and Retirement Study committee, Nov. 27, 2012. See Appendix F #1 and #5.
- ² JLBC Appropriations report, page BH-5 see, <http://www.azleg.gov/jlbc/13AR/bh2.pdf>.
- ³ Arizona's Pension Challenges: The need for an Affordable, Secure, and Sustainable Retirement Plan, Nov. 2012. The Pew Center on the States and the Laura and John Arnold Foundation (LJAF).
- ⁴ See Appendix F # 3, #4, #5, #9, #10, #11.
- ⁵ Ibid, Arizona's Pension Challenges, Pew Center on the States.
- ⁶ See Laws 1999, chapter 327 Arizona Legislature.
- ⁷ Committee testimony, Nov. 27, 2012 by Jim Hacking, administrator of PSPRS, CORP and EORP.
- ⁸ Committee testimony, Nov. 27, 2012 by Josh Magee, Laura and John Arnold Foundation.
- ⁹ Committee testimony, Dec. 13, 2011 by Byron Schlomach, Ph.D., Director of the Goldwater Institute Center for Economic Prosperity.
- ¹⁰ "GASB Won't Let Me" – A False Objection to Public Pension Reform, Robert M. Costrell, Professor of Education Reform and Economics, University of Arkansas, fellow, George W. Bush Institute, Southern Methodist University, May 2012.
- ¹¹ Ibid.
- ¹² Decisions, Decisions: Retirement Plan Choices for Public Employees and Employers; Mark Ollerman FSA, MAAA, EA and Ilana Boivie, Milliman; National Institute on Retirement Security; Sept. 2011.
- ¹³ "A full career in the public sector may be optimal for both the employer and the employee in some situations, but in other instances shorter periods of employment may be more desirable from the perspective of both parties. For example, social workers, who face burdensome caseloads and constant stress, are often exhausted long before retirement age. These workers need to move to new jobs in either the public or private sector. Therefore, a plan that disproportionately rewards long-service workers does not provide the right incentives in all cases." Page 153 "State and Local Pensions: What Now?" By Alicia Munnell, Peter F. Drucker Professor of Management Sciences, Carroll School Of Management, and director of the Center for Retirement Research at Boston College 2012.
- ¹⁴ Ibid, Committee testimony, McGee.
- ¹⁵ Email from Mark Buis, F.S.A., E.A. Gabriel, Roeder, Smith & Company, to Jim Hacking, PSPRS administrator, Sept. 13, 2012.
- ¹⁶ Email from Douglas Fiddler, Director, Retirement Actuary, Buck Consultants, to Paul Matson, ASRS Director, Sept. 14, 2012.
- ¹⁷ See United States Bankruptcy Court, District of Rhode Island, Case No. 11-13105 Fourth amended plan for adjustment of debts of the City of Central Falls, Rhode Island, July 27, 2012 (the State of Rhode Island did provide a 5-year supplement benefit to these retirees to offset a portion of the reduction).
- ¹⁸ Ibid, Exhibit 4, Actuarial Study by Sherman Actuarial Services, LLC, page 1.
- ¹⁹ See Annual Actuarial Rates and Funding Levels by Individual Employer (Fiscal Year 2013) by PSPRS. Appendix F #7.
- ²⁰ While Article 29 of the Arizona Constitution protects the benefits of state retirement plans from impairment, how those protections would fair in a United States Bankruptcy Court proceeding is not clear.
- ²¹ Calculations using Bloomberg L. P. 2012, retirement plan calculator.
- ²² See Dec. 13, 2011 Arizona Private Sector DC vs. DB Retirement Plan Survey results.
- ²³ Tower Watson annual survey of Fortune 100 companies, Oct. 2012.
- ²⁴ Issue Brief; A role for Defined Contribution Plans in the Public Sector; Alicia H. Munnell, Aubry, Hurwitz and Quinby; Center for State & Local Government Excellence April 2011.
- ²⁵ State Cash Balance, Defined Contribution and Hybrid Retirement Plans, National Conference of State Legislatures, Ronald Snell July 2012.
- ²⁶ Rhode Island Plan Enacts New Approach to States' Pension Woes, Pew Center on the States, March 2012.
- ²⁷ Section 31.3121(b) (7)-2 of the Employment Tax Regulations of Internal Revenue Service.

APPENDIX A

September 27, 2011

Presentations:

1. Presentation Master DC Study Committee 9-27-11 – ASRS
2. Study Committee 2011-09-20 Financial Retrospective and Prospects for the Future – PSPRS
3. Utah Pension Reform Presentation - Hon. Daniel Liljenquist, Utah State Senator

Articles or Reports:

4. Memorandum on Actuarial Modeling from Gabriel Roeder Smith & Company to Sen. Liljenquist

APPENDIX B

October 25, 2011

Presentations:

1. Presentation Salary History Analysis Retired and Active - Compensation and Pension Analysis of Active and Retired Members of the Arizona State Retirement System – (ASRS)
2. Presentation State, ASRS and PSPRS DC Plans - Informational Presentation on Defined Contribution Plans Administered by the State of Arizona, the Arizona State Retirement System and Public Safety Personnel Retirement System – (ASRS)
3. Study Committee Analysis and Report on Spiking-Revised – (PSPRS)
4. Study Committee Power Point Presentation on Spiking – (ASRS)
5. DC and Hybrid Retirement Plans in Other States – Committee Staff Presentation

Articles

6. Decisions, Decisions: Retirement Plan Choices for Public Employees and Employers; Mark Ollerman FSA, MAAA, EA and Ilana Boivie, Milliman; National Institute on Retirement Security; Sept. 2011
7. Defined Benefit versus Defined Contribution Plans - Presentation to the 2011 National Institute for Public Finance; Lance Weiss, Gabriel Roeder Smith & Company; August 2011
8. Issue Brief; A role for Defined Contribution Plans in the Public Sector; Alicia H. Munnell, Aubry, Hurwitz and Quinby; Center for State & Local Government Excellence April 2011
9. Key Elements of State Hybrid Retirement Plans; National Association of State Retirement Administrators; Keith Brainard; February 2011
10. State Defined Contribution and Hybrid Pension Plans; Ronald Snell, National Conference of State Legislatures; June 2010
11. Public Fund Survey – Summary of Findings for FY 2009; Keith Brainard, NASRA; Nov. 2010

APPENDIX C

November 22, 2011

Presentations:

1. Side by Side Comparison of Spiking by ASRS, PSPRS, CORP and EORP – Committee Staff
2. Study Committee Spiking Analysis Police vs. Fire and Metro vs. Rural (PSPRS)
3. Study Committee Spiking Analysis using the ASRS Methodology (PSPRS)
4. ASRS Salary Spiking – PSPRS Methodology (ASRS)
5. ASRS Actuarial Update for June 30, 2011 – (ASRS)
6. Study Committee FY'11 Actuarial Valuation Summary (PSPRS)
7. Study Committee FY'13 PSPRS and CORP Final Employer Rates (PSPRS)
8. FY'11 Financial Report 11-15-11 – (PSPRS)
9. ASRS Board Structure and Governance – (ASRS)
10. ASRS Long Term Disability Approval Process – (ASRS)
11. PSPRS Board Structure and Governance – (PSPRS)
12. Multi-Employer vs. Pooled Plans and Disability Stats – (PSPRS)

Articles or Reports:

13. Rhode Island Legislators OK Hybrid Retirement Plan; Kevin Olson, Pensions and Investments Nov. 18, 2011
14. NASRA Issue Brief: State Hybrid Retirement Plans; Keith Brainard, NASRA; Nov. 2011
15. GFOA Governance Guidelines; Adopted March 5, 2010
16. Stanford Institutional Investors' Forum, Committee on Fund Governance Best Practice Principals, Peter Clapman, May 31, 2007
17. Canadian Association of Pension Supervisory Authorities, Guidelines, Oct. 25, 2004
18. ASRS Board Governance Handbook, Revised July 15, 2011
19. Myths and Misperceptions of Defined Benefit and Defined Contribution Plans, White Paper; Keith Brainard, NASRA; Nov. 2002; updated Feb. 2005
20. Defusing the Pension Bomb: Making Retirement Plans Solvent for all Public Workers, Policy Brief; Byron Schlomach, Ph.D., Goldwater Institute's Center for Economic Prosperity, April 27, 2011
21. \$50 Billion Tidal Wave: How Unfunded Pensions Could Overwhelm Arizona Taxpayers; Goldwater Institute Policy Report, Andrew Biggs, resident scholar American Enterprise Institute, March 31, 2010
22. The Crisis in Local Government Pensions in the United States; Robert Novy-Marx University of Rochester and NBER, and Joshua Rauh, Kellogg School of Management and NBER, Oct. 2010

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23. A comparative Analysis of Defined Benefit and Defined Contribution Retirement Plans, Paul Matson and Susanne Dobel, ASRS, September 22, 2006
 24. A Better Bang for the Buck, the Economic Efficiencies of Defined Benefit Pension Plans, Betha Almeida and William B. Fornia, FSA, National Institute on Retirement Security, August 2008.
 25. OECD Guidelines for Pension Fund Governance, June 5, 2009
 26. A comparison of Arizona's Public Pension Plans, ASRS Summer 2011

APPENDIX D

December 13, 2011

Presentations:

1. Review and Follow-up Questions – Committee Staff Presentation
2. DC v DB Survey Results
3. Overview of Private 2011-12-13 1609 Study Committee Presentation – PSPRS
4. Actuarial Projections – ASRS
5. Cash Flows – ASRS
6. Salary Spiking - Reasons for Increases – ASRS

Articles or Reports:

7. Arizona Private Sector DC vs. DB Retirement Plan Survey Results
8. Mackinac Center Public Policy Brief – *Estimated Savings from Michigan's 1997 State Employees Pension Plan Reform*
9. Towers-Watson-Accounting-for-Pension and Other Postretirement Benefits, 2011

APPENDIX E

December 21, 2011

Interim Report:

1. S.B. 1609 Defined Contribution and Retirement Study Committee Interim Report

APPENDIX F

November 27, 2012

Presentations:

1. ASRS Actuarial Update for June 30, 2012
2. ASRS Cash Flows
3. ASRS Liability memo
4. ASRS Liability Reduction Presentation

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5. FY'12 Financial Report, PSPRS
 6. FY'12 PSPRS, CORP & EORP Funded Status at 5%_06_30_2012FY
 7. Study Committee Final Employer Rates and Group Funding Ratios based on FY'13 Valuation Results for PSPRS, CORP
 8. Study Committee FY'12 Data and Projection Refinements Presentation-PSPRS
 9. FY'12 PSPRS Stochastic Projections Old Law vs. New Law - client copy
 10. FY'12 EORP - Old Law vs. New Law Stochastic Projections
 11. CORP - Old Law vs. New Law - for client
 12. Josh McGee Arizona Pension Challenges Presentation

Articles or Reports:

13. "GASB Won't Let Me" – A False Objection to Public Pension Reform, Robert M. Costrell, Professor of Education Reform and Economics, University of Arkansas, fellow, George W. Bush Institute, Southern Methodist University, May 2012.
14. New GASB Pension Statements to Bring about Major Improvements in Financial Reporting, June 2012
15. Moody's pension calculation changes could hit Illinois hard, Pension and Investments, July 10, 2012
16. AZ Pension Challenges Report, Pew Center on the States, Laura and John Arnold Foundation, November 2012
17. Pew Center Pensions Update
18. Rhode Island Plan Enacts New Approach to States' Pension Woes, Pew Center on the States, March 2012.
19. State Cash Balance, Defined Contribution and Hybrid Retirement Plans, National Conference of State Legislatures, Ronald Snell July 2012
20. Tower Watson annual survey of Fortune 100 companies, October 2012.